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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/801,687

03/17/2004

Kenji Kashiwagi

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ANTONELLI, TERRY, STOUT & KRAUS, LLP  
1300 NORTH SEVENTEENTH STREET  
SUITE 1800  
ARLINGTON, VA 22209-3873

EXAMINER

D AGOSTA, STEPHEN M

ART UNIT

PAPER NUMBER

2683

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/801,687	Applicant(s) KASHIWAGI ET AL.	
	Examiner Stephen M. D'Agosta	Art Unit 2683	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,9,10,13 and 19 is/are rejected.
- 7) ☒ Claim(s) 2,3,7,8,11,12,14-18 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Specification*

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 5-6, 9-10, 13 and 19** rejected under 35 U.S.C. 102(b) as being anticipated by Crilly Jr. et al. US 2003/0020651.

As per **claims 1, 9 and 13** Crilly teaches a (first) radio base station for wirelessly communicating with a radio terminal (figure 2 shows a network, eg. BTS/Access Unit #102 that can connect to users, BTS's etc.), comprising:

a radio communication unit for wirelessly communicating with said radio terminal (figure 2, #102 shows transmitter and receiver hardware);

an antenna for transmitting or receiving radio waves with a directivity (figure 2 #122 is a directional antenna, See Para.'s 11, 56, 65, 93 and 175. The examiner also notes that directional antennas are well known in the art); and

a controller for changing the directivity of said antenna (figure 6, #206/212), detecting a state of radio waves emitted from another/second radio base station, and setting a communication area of the concerned/first radio base station on the basis of the detected radio wave state (see Para. 128. The examiner notes that this claim sentence is written broadly enough for Crilly's teaching of determining "...whether there is a potential for interference from a neighboring node..." and "if it is determined in step 204 that there is a potential for significant interference..." to read on changing directivity

of the antenna based on detecting a state of radio waves emitted from another BTS/neighbor. Also see figure 15 which teaches “measuring an unwanted signal from a second wireless routing device, eg. BTS).

***With further regard to claim 9***, Crilly teaches first and second BTS's communicating with each other, figure 15, #404. Crilly also teaches first BTS informing the second BTS that a NULL is to be applied in its direction, which reads on “wherein the concerned base station informs the other base station of the positional information of the concerned base station”.

***With further regard to claim 13***, Crilly teaches setting the concerned base station to have the same radio frequency band as the other base station (figure 2 shows the BTS #102 communicating with other devices which requires it to have the same frequency band) or setting the concerned base station to have a radio wave band different from the other base station according to the state of radio waves of the other base station; and

finding positional information of the concerned base station on the basis of the detected radio wave state of the other base station and setting a communicatable area for the concerned base station (Para. #128 teaches determining interfering node position(s) and directing the antenna to null them).

As per **claim 5**, Crilly teaches claim 1, wherein said controller searches for a communicatable area of another radio base station other than the concerned radio base station, and when there is a radio base station whose radio waves interfere with radio waves used by the concerned radio base station, for setting the communication area of the radio waves of the concerned radio base station so that the radio wave interference is minimized (see Para. 128. The examiner notes that this claim sentence is written broadly enough for Crilly's teaching of determining “...whether there is a potential for interference from a neighboring node OR NODES...” and “if it is determined in step 204 that there is a potential for significant interference...” to read on changing directivity of the antenna based on detecting a state of radio waves emitted from another BTS/neighbor.), or for assigning the radio waves to a channel different from said other radio base station.

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As per **claim 6**, Crilly teaches claim 5, wherein said controller changes the setting of the communicable area of the concerned radio base station or a radio channel to be used when the radio base station was subject to radio wave interference by external noise (see Para. 128. The examiner notes that this claim sentence is written broadly enough for Crilly's teaching of determining "...whether there is a potential for interference from a neighboring node OR NODES..." and "if it is determined in step 204 that there is a potential for significant interference..." to read on changing directivity of the antenna based on detecting a state of radio waves emitted from another BTS/neighbor.), or when a radio base station was added, or when a position of the radio base station was moved.

As per **claim 10**, Crilly teaches 10. The radio base station according to claim 9, wherein said communication means is a wired LAN (Para. #3 teaches wired and wireless LAN connections).

As per **claim 19**, Crilly claim 13, further comprising the steps of: when the concerned radio base station was subject to radio wave interference by external noise, searching for said peripheral base station, finding positional information of the base station, and setting a communicable area for the concerned base station; and informing the other base station other than the concerned base station of the positional information of the concerned base station (see figure 15).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 4** rejected under 35 U.S.C. 103(a) as being unpatentable over Crilly as applied to claim 1 above, and further in view of Sharrit et al. US 6,185,205.

As per **claim 4**, Crilly teaches claim 1, **but is silent on** wherein said controller sets a communication area of the concerned radio base station by adjusting a power of a radio wave output of said antenna, a reception sensitivity thereof, and a directivity thereof.

Sharrit teaches "In general, as is well known in the art, the range will depend on factors such as transmit power level, antenna directivity, and receiver sensitivity. It should further be appreciated that the maximum range for each of the external systems will vary from system to system. (C9, L43-49).

Hence after determining that interference from another device/BTS will occur (per claim 1), Crilly would be modified with Sharrit's teachings to adjust transmit power, antenna directivity and receiver sensitivity.

It would have been obvious to one skilled in the art at the time of the invention to modify Crilly, such that said controller sets a communication area of the concerned radio base station by adjusting a power of a radio wave output of said antenna, a reception sensitivity thereof, and a directivity thereof, to provide means for changing antenna characteristics to minimize interference.

***Allowable Subject Matter***

**Claims 2-3, 7-8, 11-12, 14-18 and 20** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**claim 2**, the prior art, alone or in combination does not teach “a controller comprising: means for detecting an electric field intensity of radio waves transmitted from another radio base station; means for converting the detected electric field intensity to a distance; means for finding a relative direction and distance of the other radio base station with respect to the concerned radio base station; and a positional information memory for storing a position of the other radio base station”.

**claim 3**, the prior art, alone or in combination does not teach “wherein said positional information memory stores a polar coordinate of the other radio base station with respect to the concerned radio base station”.

**claim 7**, the prior art, alone or in combination does not teach “wherein said controller has means for detecting a movement of the concerned base station, and changes the setting of the communicatable area of the concerned base station or a radio channel to be used”.

**claim 8**, the prior art, alone or in combination does not teach “wherein said controller has a search information memory for storing search information indicative of whether or not another radio base station other than the concerned base station is searching for a communicatable area, and searches for the communicatable area of the other base station when the other base station is not searching for the communicatable area”.

**claim 11**, the prior art, alone or in combination does not teach “wherein said communication means receives the positional information of the other radio base station other than the concerned base station, and said controller sets the communication area and positional information of the concerned base station on the basis of a result obtained by searching for the communicatable area of the other base station other than the concerned base station and the positional information of the other base station”.

**claim 12**, the prior art, alone or in combination does not teach “wherein said controller searches for the communicatable area of the other base station other than the concerned base station, and, when there was a radio base station uses radio waves interfering with radio waves used by the concerned base station, sets the communication area of radio waves of the concerned base station so as to minimize the radio wave interference or changes radio waves to be assigned to a channel different from that of the other base station”.

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**claim 14**, the prior art, alone or in combination does not teach "receiving positional information of the other base station from the other base station; generating positional information relative to the concerned base station on the basis of the received positional information of the other base station and the radio wave state transmitted by the other base station; and setting a directivity, a radio output intensity and a reception sensitivity for the concerned base station on the basis of the positional information of the base station".

**claim 15**, the prior art, alone or in combination does not teach "changing a communicatable area of the other base station when setting of a communicatable area for the concerned base station failed".

**claim 16**, the prior art, alone or in combination does not teach "judging whether or not the other base station detects the radio wave state, and wherein the detection of the radio wave state of the other base station is carried out when the other base station is not in a similar searching operation".

**claim 17**, the prior art, alone or in combination does not teach "searching for said peripheral radio base station, finding initial positional information of the new base station, and setting a communicatable area for the new base station; and informing another radio base station other than the new base station of said initial positional information".

**claim 18**, the prior art, alone or in combination does not teach "wherein said periphery searching of the radio base station is carried out when the other radio base station is not in a periphery searching operation".

**claim 20**, the prior art, alone or in combination does not teach "detecting a movement of the concerned base station; when said movement was detected, searching for said peripheral radio base station, finding positional information of the base station, and setting a communicatable area for the base station; and informing the other radio base station other than the concerned base station of said initial positional information".



**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Proctor Jr. US 2003/0048770
2. Dartois US 6,181,955
3. Kisigami et al. US 2004/0204113
4. Fukagawa et al. US 6,188,913
5. Carey et al. US 2002/0068612
6. Thomas US 6,498,939
7. Hur et al. US 2002/0114304
8. Benveniste US 2003/0064745
9. Ogino et al. US 2004/0203913

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta  
Primary Examiner

